

WHAT IS CLAIMED IS:

1. An exposure apparatus, comprising:  
irradiating means for projecting pulse light  
to a mask; and

5 a projection optical system for projecting a  
pattern of the mask onto a substrate;

wherein the pulse light has an adjusted  
wavelength such that it substantially coincides with a  
wavelength of laser light of continuous wave.

10

2. A system according to Claim 1, wherein said  
projection optical system includes a lens assembly.

3. An apparatus according to Claim 1, wherein  
15 said projection optical system includes a concave  
mirror and a lens assembly.

4. An apparatus according to Claim 1, wherein  
said projection optical system includes a mirror  
20 assembly.

5. An apparatus according to Claim 1, wherein  
said irradiating means includes a laser for supplying  
pulse light which is said pulse light.

25

6. An apparatus according to Claim 5, wherein  
said laser comprises a KrF excimer laser.

7. An apparatus according to Claim 1, wherein the laser light of continuous wave comprises laser light from a continuous emission laser.

5

8. An apparatus according to Claim 1, wherein the laser light of continuous wave comprises harmonics of laser light from a continuous emission laser.

10

9. An apparatus according to Claim 8, wherein the harmonics comprises a secondary harmonic wave.

10. An apparatus according to Claim 8, wherein said continuous emission laser comprises a gas laser.

15

11. An exposure apparatus, comprising:  
an irradiation optical system for projecting pulse light of a wavelength 248.25 nm to a mask; and  
a projection optical system for projecting a pattern of the mask onto a substrate.

20

12. An apparatus according to Claim 11, wherein the pulse light comprises light supplied by a KrF excimer laser.

25

13. An apparatus according to Claim 12, wherein said projection optical system includes a lens

assembly.

14. An apparatus according to Claim 12, wherein  
said projection optical system includes a concave  
5 mirror and a lens assembly.

15. An apparatus according to Claim 12, wherein  
said projection optical system includes a mirror  
assembly.

10

16. A device manufacturing method, comprising the  
steps of:

providing a light source adapted to supply  
pulse light of a wavelength 248.25 nm; and

15

projecting the pulse light to a mask so that  
a pattern of the mask is projected through a  
projection optical system to a substrate.

17. A method according to Claim 16, wherein the  
20 light source comprises a KrF excimer laser.

18. A method according to Claim 17, wherein the  
projection optical system includes a lens assembly.

25

19. A method according to Claim 17, wherein the  
projection optical system includes a concave mirror  
and a lens assembly.

20. A method according to Claim 17, wherein the projection optical system includes a mirror assembly.

5        21. A method according to Claim 17, wherein the pulse light comprises band narrowed light.

22. A device manufacturing method, comprising the steps of:

10            providing a light source adapted to supply pulse light; and

             projecting the pulse light to a mask so that a pattern of the mask is projected through a projection optical system to a substrate;

15            wherein the pulse light has an adjusted wavelength such that it substantially coincides with a wavelength of laser light of continuous wave.

23. A method according to Claim 22, wherein the pulse light comprises light supplied from a KrF excimer laser.

24. A method according to Claim 22, wherein the projection optical system includes a lens assembly.

25            25. A method according to Claim 22, wherein the projection optical system includes a concave mirror

and a lens assembly.

26. A method according to Claim 22, wherein the projection optical system includes a mirror assembly.

5

27. A method according to Claim 22, wherein the laser light of continuous wave comprises laser light from a continuous emission laser.

10

28. A method according to Claim 22, wherein the laser light of continuous wave comprises harmonics of laser light from a continuous emission laser.

15

29. A method according to Claim 28, wherein the harmonics comprises a secondary harmonic wave.

30. A method according to Claim 29, wherein said continuous emission laser comprises an argon laser.

20

31. A method according to Claim 30, wherein the pulse light comprises light supplied from a KrF excimer laser.

25

32. A method according to Claim 31, wherein the pulse light comprises band narrowed light.

33. An apparatus according to Claim 5, wherein

the pulse light comprises band narrowed light.

34. An apparatus according to Claim 12, wherein  
the pulse light comprises band narrowed light.

5

*add  
A. 2. 2*

10

15

20

25